WHAT IS CLAIMED IS:

1. A method for making a zeolite, comprising the steps of:

a) providing a porous inorganic oxide;

b) impregnating said porous inorganic oxide with a liquid solution containing a micropore-forming directing agent, wherein the amount of liquid solution is no more than about 100% of the pore volume of the inorganic oxide, and the concentration of the micropore-forming directing agent in the liquid solution ranges from about 21% to about 60% by weight; and,

c) heating the impregnated porous inorganic oxide at an elevated synthesis temperature for a duration of time sufficient to form a zeolite-containing product.

2. The method of claim 1 further including the steps of washing and then drying the zeolite-containing product.

3. The method of claim 1 wherein in the heating step (c) the impregnated porous inorganic oxide is raised to the synthesis temperature in a period of time short enough to preclude the formation of zeolite crystals larger than about 100 nm in size.

4. The method of claim 3 wherein the zeolite in the product has a crystal size of from about 25 to about 100 nm.

5. The method of claim 4 wherein the zeolite is zeolite Y.

6. The method of claim 3 wherein the period of time in which the porous inorganic oxide is raised to the elevated temperature is less than about 3,600 seconds.

7. The method of claim 3 wherein the period of time in which the porous inorganic oxide is raised to the elevated temperature is less than about 120 seconds.

8. The method of claim 1 wherein the liquid solution is an aqueous solution.

9. The method of claim 1 wherein the micropore-forming directing agent is an inorganic directing agent which provides OH^- ions.

10. The method of claim 9 wherein the inorganic micropore-forming directing agent is an alkali metal hydroxide or an alkaline earth metal hydroxide.

11. The method of claim 10 wherein the micropore-forming directing agent is sodium hydroxide.

12. The method of claim 9 wherein the concentration of inorganic micropore-forming directing agent ranges from about 25% to about 55% by weight.

13. The method of claim 9 wherein the concentration of inorganic micropore-forming directing agent ranges from about 45% to about 50% by weight.

14. The method of claim 9 wherein substantially no organic directing agent is present.

15. The method of claim 1 wherein the synthesis temperature ranges from about 50°C to about 150°C.

16. The method of claim 1 wherein the synthesis temperature ranges from about 70°C to about 110°C.

17. The method of claim 1 wherein the porous inorganic oxide is a silicon-aluminum-oxygen containing compound.

18. The method of claim 1 wherein the porous inorganic oxide has a structure having mesopores and/or macropores.

19. The method of claim 15 wherein the zeolite-containing product is a composite structure retaining the framework morphology of the porous inorganic oxide but wherein at least some of the porous inorganic oxide is converted to crystalline material.

~~20~~. A method for making a nanocrystalline zeolite comprising:

a) providing an porous aluminosilicate material having a structure including mesopores and/or macropores;

b) impregnating the aluminosilicate material with an aqueous solution containing from about 25% to about 55% by weight of sodium hydroxide, wherein the amount of aqueous solution is from about 80% to 100% of the pore volume of the aluminosilicate material; and,

c) heating the impregnated aluminosilicate to an elevated synthesis temperature for a duration of time ranging from about 15 minutes to 5 hours to produce a product containing at least 76% zeolite with a crystal size less than 100 nm.

21. The method of claim 20 wherein the product is a composite structure retaining the structure of the porous aluminosilicate but wherein at least some of the amorphous aluminosilicate is converted to the zeolite.

22. The method of claim 21 wherein the zeolite is zeolite Y.

23. The method of claim 22 wherein the zeolite Y has a crystal size of less than 100 nm and a pore size of from 7 Å to about 8 Å.

24. A zeolite material having a silica-alumina molar ratio of no more than about 10 and a crystal size of no more than about 100 nm.

25. The zeolite material of claim 24 wherein the silica to alumina molar ratio is less than about 6.

26. A crystalline aluminosilicate material having the structure of zeolite X or zeolite Y and a crystal size of no more than 100 nm.

27. The crystalline aluminosilicate material of claim 26 having the structure of zeolite Y and a crystal size of less than about 100 nm.

28. The crystalline aluminosilicate material of claim 27 having a silica to alumina mole ratio of less than about 6, and a unit cell size of less than about 25 Å.